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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,850	06/20/2003	Ayumu Oda	59408 (49321)	6007

21874 7590 06/28/2005

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EXAMINER

PHAM, HAI CHI

ART UNIT PAPER NUMBER

2861

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/600,850	ODA ET AL.	
	Examiner	Art Unit	
	Hai C. Pham	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>06/20/03</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 6-10, 12-16, 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. (JP 62-166372) in view of Nakamura et al. (JP 07-270673) and Patten et al. (Pub. No. U.S. 2002/0196473).

Inoue et al., an acknowledged prior art, discloses an image exposure device and focusing method comprising a pattern image forming process for forming a test pattern including multiple pattern elements (Fig. 5) corresponding to pixels arranged along a main scanning direction over an image forming area onto a surface of an image-carrying member (10), and a position adjustment process for adjusting the position of the optical writing unit relative to the surface of the image-carrying member based on the result of the test pattern.

However, Inoue et al. fails to teach the position adjustment process being based on the density levels of the multiple pattern elements of the test pattern formed on the printing medium, and the test pattern being binary pattern elements, the density levels being determined by the diameter of individual dots, the light-emitting power of the individual light-emitting elements.

Nakamura et al., an acknowledged prior art, discloses an image exposure device and focusing method comprising a pattern image forming process for forming a test pattern including multiple pattern elements (exposure test pattern a) corresponding to pixels arranged along a main scanning direction over an image forming area onto a surface of an image-carrying member (12) to form a latent image, which is converted into a visible toner image and the toner image being transferred from the surface of the image-carrying member onto a printing medium, and a position adjustment process for adjusting the position of the optical writing unit relative to the surface of the image-carrying member based on the result of the density levels of the multiple pattern elements of the test pattern formed on the printing medium. Nakamura et al. further teaches setting the optical write unit (45) at a position closer or farther from the image-carrying member as compared to a position having a correct focus in order to expose the image-carrying member with the test pattern consisting of binary image data. However, Nakamura et al. fails to teach the test pattern having varying density levels.

Patten et al. discloses a focus adjustment mechanism by printing a continuous test patterns along the main scanning direction (Fig. 5A), the test patterns having

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varying density levels, which are defined by the size or diameter of the spot on the imaging surface, or by varying the exposure level.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to adjust the focus of the optical write unit of Inoue et al. based on the read density of the test pattern as taught by Nakamura et al. and Patten et al. such that a fine position adjustment process can be obtained.

Inoue et al. further teaches:

- An assembly process for installing the optical writing unit at an offset position closer to or farther away from the image-carrying member than a position where the focal point of the light emitted from the individual light-emitting elements is expected to coincide with the surface of the image-carrying member before execution of said pattern image forming process (Figs. 6 and 7),
- Wherein said assembly process is performed when both ends of the optical writing unit at extremities of the image forming area in the main scanning direction are affixed to an adjustment mechanism (e.g., using screws 20a and 20b),
- A memory for storing data on a test pattern (memory of the computer 70).

4. Claims 5 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. in view of Nakamura et al. and Patten et al., as applied to claims 3 and 15 above, and further in view of Nakazawa et al. (U.S. 6,288,733).

Inoue et al., as modified, discloses all the basic limitations of the claimed invention except for the pattern image forming process being a process in which light-emitting time of the individual light-emitting elements is controlled.

Nakazawa et al. discloses a calibration device in which the density levels of an image can be formed by either varying the exposure time (e.g., adjust the pulse width modulating the laser beam) or the exposure power.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to vary the density levels of the test pattern in the modified device of Inoue et al. by varying the exposure time of the light emitting elements as taught by Nakazawa et al. since Nakazawa et al. teaches this to be known in the art for varying the density levels of the test pattern.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. in view of Nakamura et al. and Patten et al., as applied to claim 10 above, and further in view of Imakawa (U.S. 5,231,280).

Inoue et al., as modified, discloses all the basic limitations of the claimed invention except for the controlled actuator.

Imakawa discloses in Fig. 6 a focusing error detection apparatus using a piezoelectric element (13) to adjust the position of the laser source (11) so as to focus the laser beam on the surface to be scanned.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the controlled piezoelectric element in the

focus adjustment device of Inoue et al. as taught by Imakawa. The motivation for doing so would have been to constantly and automatically adjust the focus of the light beam on the surface to be scanned to obtain a high quality image.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**HAI PHAM
PRIMARY EXAMINER**

June 24, 2005